

Claims

1. A radiation sensitive composition, wherein the composition comprises: 1) a dual polymer binder system, 2) an infrared absorbing compound, 3) an acid generating compound and, optionally, 4) a stabilizing acid.
2. A composition according to claim 1, wherein the dual polymer binder system comprises a first polymer comprised of a condensation product of phenol, o-chlorophenol, o-, m- or p-cresol, p-hydroxy benzoic acid, 2-naphthol or other monohydroxy aromatic monomer with an aldehyde such as formaldehyde, acetaldehyde, fural, benzaldehyde, or any other aliphatic or aromatic aldehyde;
- 10 and a second polymer comprised of the condensation product of catechol, resorcinol, hydroquinone, bisphenol A, bisphenol B, trihydroxybenzene, or other di- or polyhydroxy aromatic compound, and methylolated analogs thereof, with an aldehyde such as formaldehyde, acetaldehyde, fural, benzaldehyde, or any other aliphatic or aromatic aldehyde.
- 15 3. A composition according to claim 1, wherein the first polymer has a molecular weight in the range from 2,000 to 80,000, more preferably in the range from 4,000 to 40,000, and most preferably in the range from 7,000 to 20,000; and the second polymer has a molecular weight in the range from 150 to 15,000, more preferably in the range from 400 to 10,000, and most preferably in the range from 600 to 4,000.
- 20 4. A composition according to claim 1, wherein the infrared absorbing compound is a dye or insoluble material such as carbon black.
5. A composition according to claim 1, wherein the infrared absorbing compound is preferably comprised of dyes derived form classes including pyridyl, quinolinyl, benzoxazolyl, thiazolyl, benzothiazolyl, oxazolyl and selenazolyl.
- 25 6. A composition according to claim 5, wherein the acid generating compound is an onium salt.

- 13 -

7. A composition according to claim 6, wherein the onium salt comprises sulfonium, sulfoxonium, arsonium, iodonium, diazonium, bromonium, selenonium and phosphonium.

Sab X
8. A composition according to claim 6 or 7, wherein the anion, which
5 determines the released free acid, includes chloride, bisulfate, hexafluoroantimonate,
hexafluorophosphate, tetrafluoroborate, methane sulfonate and mesitylene sulfonate.

9. A composition according to claim 6 or 7, wherein the onium salt is
diphenyliodonium hexafluorophosphate or 3-methoxy-4-diazodiphenylamine
hexafluorophosphate.

10 10. A composition according to claim 1, wherein the stabilizing acid is a
carboxylic acid.

11. A composition according to claim 10, wherein the stabilizing acid is an
aromatic carboxylic acid.

12. A composition according to claim 11, wherein the stabilizing acid is a
15 benzoic acid or a substitute thereof or a naphthoic acid or a substitute thereof.

Sab X
13. A composition according to any of the preceding claims, wherein it
comprises the use as in the write-the-background mode and as in the write-the-image mode:

1. Write-the-background mode

| | | |
|----|-----------------------------|-----------|
| 20 | dual polymer binder, | |
| | * polyphenolic | 50 - 95% |
| | * polyhydric | 5.0 - 40% |
| | infrared absorber | 0.1 - 12% |
| | acid generator | 0.1 - 12% |
| | stabilizing acid (optional) | 0.1 - 10% |

25 2. Write-the-image mode

| | |
|----------------------|---------|
| dual polymer binder, | |
| * polyphenolic | 5 - 95% |

-14-

| | |
|-----------------------------|-----------|
| * polyhydric | 10 - 90% |
| infrared absorber | 0.1 - 12% |
| acid generator | 0.1 - 15% |
| stabilizing acid (optional) | 0.1 - 10% |

5

14. A composition according to claim 13, wherein it comprises the use as in the write-the-background mode and as in the write-the-image mode:

1A. Write-the-background mode

COMPOSITION A COMPOSITION B

| | | | |
|----|----------------------|-----------|-----------|
| | dual polymer binder, | | |
| 10 | * polyphenolic | 50 - 90% | 60 - 95% |
| | * polyhydric | 5 - 35% | 10 - 40% |
| | infrared absorber | 0.5 - 12% | 0.1 - 10% |
| | acid generator | 0.5 - 12% | 0.1 - 10% |
| | stabilizing acid | 0.1 - 10% | 0.1 - 10% |

15

2A. Write-the-image mode

COMPOSITION A' COMPOSITION B'

| | | | |
|----|----------------------|-----------|-----------|
| | dual polymer binder, | | |
| | * polyphenolic | 5 - 40% | 60 - 95% |
| | * polyhydric | 40 - 90% | 10 - 40% |
| 20 | infrared absorber | 0.5 - 12% | 0.1 - 10% |
| | acid generator | 1.0 - 15% | 0.1 - 10% |
| | stabilizing acid | 0.1 - 10% | 0.1 - 10% |

15. The use of a radiation sensitiv composition as defined in any of the

*Sub
B2*

-15-

claims 1 to 14, wherein it is used for coating substrates, particularly lithographic printing plates and in color proofing films or photoresist applications.

Sub A3 Cmix 5
16. A lithographic printing plate, wherein it comprises a coating prepared from a composition according to any claims 1 - 14.

17. A process for printing or image development, wherein said process comprises the use of a composition as defined in any of claims 1 - 14, for forming a coating upon a support and developing an image from the support coated with said composition.

18. A process according to claim 17, wherein it is applied to a lithographic printing plate and said plate is subjected to a heat treatment after imaging and prior to development.

Sub A4
19. Process according to claim 17 or 18, wherein it is applied to a lithographic printing plate and said plate is subjected to cure after development.

20. Process according to any of the preceding claims, wherein the composition is dissolved in an appropriate solvent system.

15 21. Process according to any of the preceding claims, wherein the composition is applied to provide a coating having a dry weight in the range from 1.5 g/m² to 3.0 g/m².

22. Process according to any of the preceding claims, wherein the composition is applied to provide a coating on a textured and anodized aluminum substrate or on a polyester substrate.